REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-21 are pending in the present application. No claims are amended, canceled, or added by the present amendment.

In the outstanding Office Action, Claims 1, 2, 5-10, 13, 16-19 and 21 were rejected under 35 U.S.C. § 103(a) as unpatentable over *A Generalized Addressing Technique for RMS Responding Matrix LCDs* to Ruckmongathan in view of JP 408044317 A to Terasaki et al. (herein "Terasaki"); and Claims 3, 4, 11, 12, 14, 15, and 20 were indicated as allowable if rewritten in independent form.

Applicants thank the Examiner for the early indication of allowable subject matter.

Addressing the above-noted rejection, that rejection is traversed by the present response.

The claims as currently written are directed to a method or device for driving a liquid crystal display device. Claim 1 recites that several lines of row electrodes in a liquid crystal display device are simultaneously selected and voltages are applied to the selected lines of the row electrode during the selection. The selection period of a display frame is divided, and column electrodes are driven with a voltage pattern to reduce a number of changes of voltage levels in each of the divided selections.

In a non-limiting example, Figure 10 shows that gradation data is generated for driving an LCD device to produce an intermediate tone. Degradation of three display lines (L1, L2, and L3) include a 3/4 gradation level, a 2/4 gradation level, and a 1/4 gradation, and three change points of voltage level occur in the second selection period, as shown in Figure 11C. Accordingly, uneven display is increased because of deformation of the waveform at the change point of the voltage levels.

To alleviate the uneven display, a column data converter modifies the voltage pattern to exchange the order of T2 and T3 to be (2, 2, -2, -2), as shown in Figure 9B. Then, in the voltage pattern after modification, there is only one change point of voltage level (see the specification at page 47, lines 3-23, and Figures 9A, 10, and 11C).

The outstanding rejection states that "Ruckmongathan does not disclose where the column electrodes are driven with a voltage pattern by reducing a number of changes of voltage levels in each of the divided selection periods."[1] The rejection further asserts that "Terasaki et al disclose in the abstract where the electrodes are driven in such a way as to reduce the number of changes of voltage levels in each of the periods," and that it "would have been obvious to one of ordinary skill in the art to incorporate the feature of Terasaki et al into that of Ruckmongathan as Terasaki et al disclose that this will reduce cross-talk in the display as is disclosed in the abstract."[2] However, this assertion is respectfully traversed because there is no motivation in the art to combine the disclosures of Ruckmongathan and Terasaki, and therefore a *prima facie* case of obviousness has not been made.

M.P.E.P. § 2143 states that to establish a *prima facie* case of obviousness, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." Further, M.P.E.P. § 2143.01 states that:

> "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

[1] See Item 2 at page 2, line 16, to page 3, line 1 of the outstanding Office Action.
[2] See Item 2 at page 3, lines 1-5 of the outstanding Office Action.

It is respectfully submitted that the outstanding rejection is improper at least because the nature of the problems solved in Ruckmongathan and Terasaki are substantially different such that there is no motivation to one skilled in the art to combine the disclosures.

Initially, it is noted that although the outstanding rejection asserts that regarding reduction in the number of changes of voltage levels "Terasaki et al disclose that this will reduce crosstalk in the display as is disclosed in the abstract,"[3] Terasaki does not in fact state that reduction of crosstalk is the benefit of reducing the number of changes of voltage levels. Rather, the abstract of Terasaki states that the purpose of that invention is "to reduce power consumption in the signal electrode driving section, by reducing the number of times of changes in the signal voltage level." In contrast, the purpose of Ruckmongathan is to require "a lower supply voltage" and to achieve "a better brightness uniformity of pixels" (see the abstract and introduction of Ruckmongathan). As reduction of power consumption is a goal entirely separate from lowering supply voltage in this technology, there is insufficient motivation to combine Terasaki and Ruckmongathan implicit in those two references.

Moreover, the outstanding rejection is further improper because the modification of Ruckmongathan by the disclosure of Terasaki as suggested in the outstanding rejection would violate the purpose of the system discussed in Ruckmongathan. In particular, M.P.E.P. § 2143.01 states that:

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

It is noted that Ruckmongathan is directed to a method for comparing multiple column voltages to select a corresponding substitute voltage in LCD displays—that is, column voltage mismatches are calculated across an arbitrary number of column voltages that

[3] See Item 2 at page 3, lines 1-5 of the outstanding Office Action.

are not necessarily adjacent or in a particular order (see the introduction and columns 1 and 2 of Ruckmongathan). In contrast, paragraph 54 of Terasaki discusses a reduction of changes of voltage levels only for individual time periods that are adjacent. As such, that disclosure of Terasaki cannot be applied to Ruckmongathan in which multiple voltage levels that exist in any order are compared to select a corresponding substitute column voltage.

In addition, the outstanding rejection is even further improper because the proposed modification in the outstanding rejection would change the principle of operation of Ruckmongathan. M.P.E.P. § 2143.01 states that:

> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

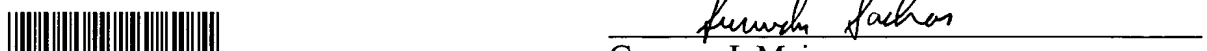
As stated above, altering Ruckmongathan by incorporating the discussion of Terasaki as suggested in the outstanding rejection would violate the principle of operation of Ruckmongathan because Ruckmongathan relies on a system that takes into account multiple voltage levels that are not necessarily adjacent, while Terasaki can only operate to reduce changes in adjacent voltage levels. If only adjacent voltage levels were compared in Ruckmongathan, its principle of calculating voltage mismatches over a wide range of non-adjacent voltage levels to reduce power consumption would be frustrated.

Accordingly, for at least the above-stated reasons it is believed that a *prima facie* case of obviousness has not been made and that the outstanding rejection is therefore improper.

Consequently, in light of the above discussion it is believed no further issues are outstanding and it is respectfully requested this application be passed to issue.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599
Surinder Sachar
Registration No. 34,423

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220

GJM/SNS/RMR/law

I:\ATTY\RR\PROSECUTION\1115\0008\11150008-AM2.DOC